



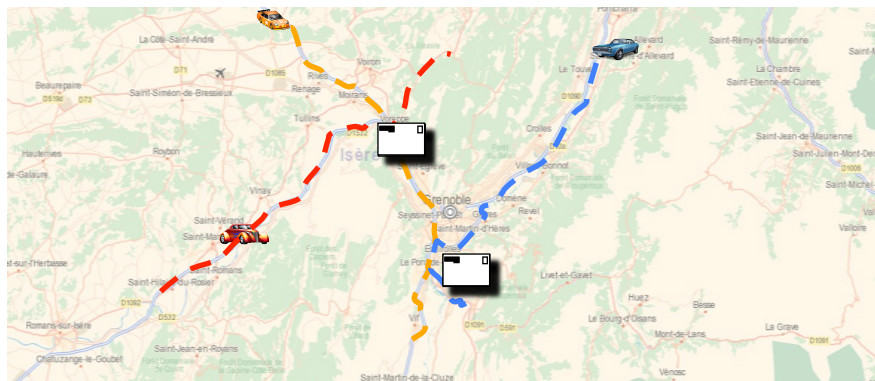
## Query optimization in ubiquitous computing environments

Christophe Bobineau, Christine Collet, Genoveva Vargas-Solar

## Ubiquitous environment

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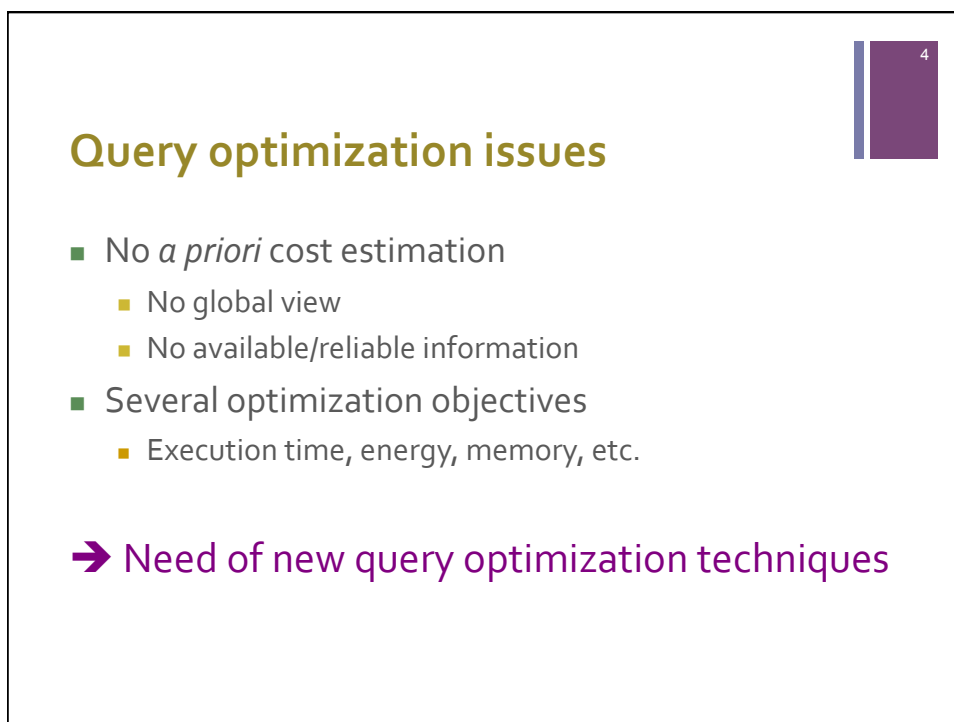
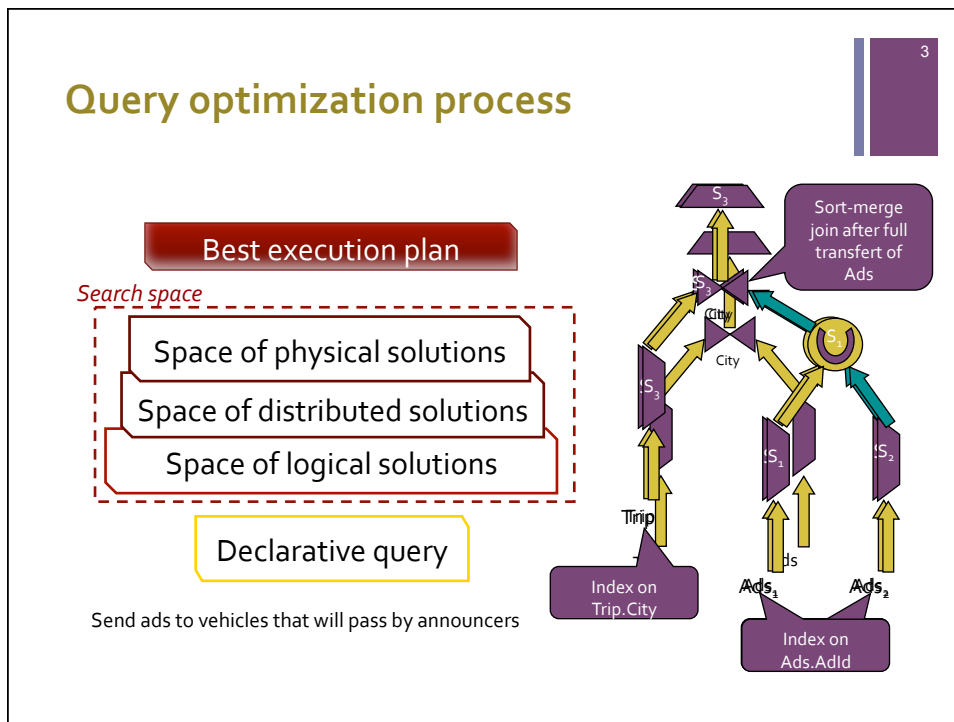
Motivation example: Intelligent ads distribution



Query: send ads to vehicles that will pass by announcers

Trip(CarId, Step, City)

Ads(AdId, Ad, Announcer, City)



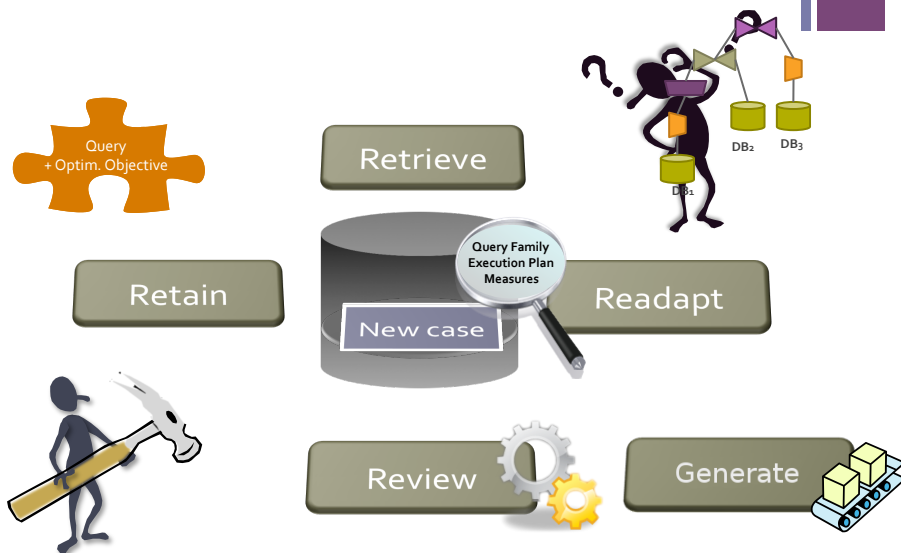
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## Query optimization challenges

- Query optimization
    - *A posteriori* cost measurement
    - Search space exploration has to be revisited
  - Personalized cost functions
    - Cost parameters measurement (CPU, Memory, Energy,...)
    - Personalized cost function = combination of parameters
- ➔ Exploit case based reasoning with (pseudo-)random query plan generator

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## CBR-based query optimization

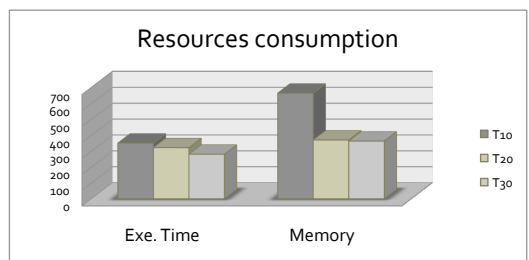


## First results

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- Testbed
  - 10 Select-Project-Join query families
  - 1000 rounds
  - Parameter: learning time (Txx)
- Optimization parameters
  - Total evaluation time
  - Memory consumption

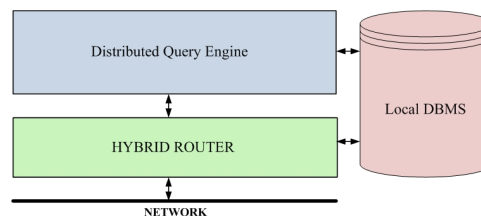
OREAU project  
(Grenoble INP BQR)



## UBIQUEST ANR Project (2009-2012)

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- Context and objectives
  - Dynamic multi-hop networks
  - Each node can store data
  - Easy design and deployment of protocols/applications
- Approach
  - Only data and queries travel over the network
  - Declarative protocol (distributed algorithms) design
  - Queries may trigger (generic or specific) protocols
- Collaborations
  - LIAMA (China)
  - CITI
- Expected contributions
  - Protocol description and query languages
  - Execution model
  - Adapted optimization techniques
  - Simulation platform

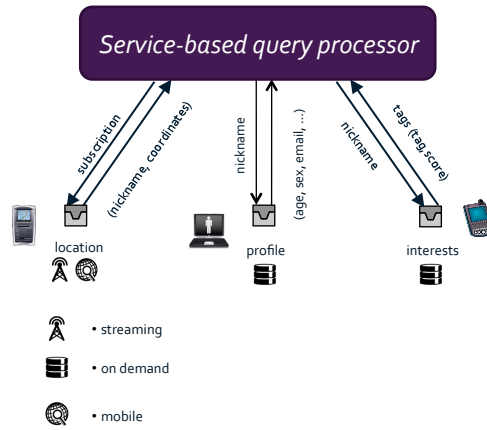


<http://ubiquest.imag.fr>

# OPTIMACS ANR Project (2008-2010)

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- Context and objectives
  - Dynamic service environment
  - Services embedded on heterogeneous nomad devices
- Challenges
  - On the fly generation of services composition
  - Variable QoS criteria
  - Optimization of queries based on data and computing services
- Collaborations
  - LAMIH, LIRIS



<http://optimacs.imag.fr>

# THANK YOU

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